

ABSTRACT OF THE DISCLOSURE

A device for the transport of fluids through a biological barrier includes a number of microneedles projecting from the front face of a substrate. A conduit is associated with each of the microneedles to provide a fluid flow path for transport of fluid through a hole in the biological barrier formed by the corresponding microneedle. Each of the microneedles is configured to provide a penetrating tip, and each conduit terminates at an opening which is proximal with respect to the microneedle tip. Also described are microneedle-based devices with integrated MEMS pumping configurations for withdrawal and/or delivery of fluids, and remote healthcare systems based on such devices.